

UNITED STATES DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site Name: Gravelly Loam

Site ID: R042XB035NM

Major Land Resource Area: 042 - Southern Desertic Basins, Plains, and Mountains

Physiographic Features

This site usually occurs on nearly level to rolling piedmont slopes and alluvial fans. Slopes occasionally reach 30 percent but average less than 15 percent. Elevations range from 4,300 to 5,000 feet.

Land Form: (1) Pediment
(2) Alluvial fan
(3) Mountain slope

	<u>Minimum</u>	<u>Maximum</u>
<u>Elevation (feet):</u>	4300	500
<u>Slope (percent):</u>	0	30
<u>Water Table Depth (inches):</u>	N/A	N/A
<u>Flooding:</u>		
Frequency:	None	Very rare
Duration:	None	Very brief
<u>Ponding:</u>		
Depth (inches):	N/A	N/A
Frequency:	None	Rare
Duration:	Very brief	Brief
<u>Runoff Class:</u>	Medium	High
<u>Aspect:</u>		

Climatic Features

Annual average precipitation ranges from 8 to 10.5 inches. Wide fluctuations from year to year are common, ranging from a low of about 2 inches to a high of over 20 inches. At least one-half of the annual precipitation comes in the form of rainfall during July, August, and September. Precipitation in the form of snow or sleet averages less than 4 inches annually. The average annual air temperature is about 61 degrees F. Summer maximums usually exceed 100 degrees F. and winter minimums can go below zero. The average frost-free season exceeds 200 days and extends from April 1 to November 1. Both the temperature regime and rainfall distribution favor warm-season perennial plants on this site. Spring moisture conditions are only occasionally adequate to cause significant growth during this period of the year. High winds from the west and southwest are common from March to June, which further tends to create poor soil moisture conditions in the springtime.

	<u>Minimum</u>	<u>Maximum</u>
<u>Frost-free period (days):</u>	179	212
<u>Freeze-free period (days):</u>	200	233
<u>Mean annual precipitation (inches):</u>	8.0	10.5

Monthly precipitation (inches) and temperature (°F):

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
Precip. Min.	0.37	0.36	0.23	0.18	0.29	0.57	1.42	1.92	1.53	1.01	0.48	0.57
Precip. Max.	0.54	0.39	0.27	0.36	0.45	0.64	1.9	2.2	1.66	1.07	0.58	0.78
Temp. Min.	20.8	25.5	31.2	38.0	46.4	54.3	61.1	59.1	51.5	39.8	28.8	22.3
Temp. Max.	58.1	63.8	71.0	79.3	87.4	96.4	95.5	92.7	87.5	78.7	67.2	58.5

- Climate Stations:
- (1) NM3855, Hatch. Period of record 1961 - 1990
 - (2) NM8387, Socorro. Period of record 1961 - 1990

Influencing Water Features

This site is not influenced by water from wetlands or streams.

<u>Wetland Description:</u>	<u>System</u>	<u>Subsystem</u>	<u>Class</u>
(Cowardin System)			

Representative Soil Features

Soils are moderately deep to deep and well drained. Typically, the surface layer is gravelly or very gravelly sandy loams to clay loams. Underlying layers are usually very gravelly loams to clays. They are usually non-calcareous or slightly calcareous in the upper part and become strongly calcareous in the substrata. They are moderately to slowly permeable. Runoff is medium to rapid. Slopes range to 30 percent but usually average less than 15 percent.

Predominant Parent Materials:

Kind: mixed

Origin: Mixed-igneous-metamorphic & sedimentary

Surface Texture:

(1)	Gravelly Sandy loam
(2)	Medium gravelly Loam
(3)	Very gravelly Clay loam

Subsurface Texture Group: Loamy

Surface Fragments <=3" (% Cover): 35

Surface Fragments > 3" (% Cover): 7

Subsurface Fragments <=3" (% Volume): 25

Subsurface Fragments > 3" (% Cover): 0

Drainage Class: Moderately well drained To Well drained

Permeability Class: Slow To Moderate

	<u>Minimum</u>	<u>Maximum</u>
<u>Depth (inches):</u>	24	72
<u>Electrical Conductivity (mmhos/cm):</u>	0	4
<u>Sodium Absorption Ratio:</u>	N/A	N/A
<u>Calcium Carbonate Equivalent (percent):</u>	N/A	N/A
<u>Soil Reaction (1:1 Water):</u>	6.1	8.4
<u>Soil Reaction (0.01M CaCl₂):</u>	N/A	N/A
<u>Available Water Capacity (inches):</u>	1.0	5.0

Plant Communities

Ecological Dynamics of the Site

Historic Climax Plant Community

This site has a grassland aspect, characterized by short and mid-grasses and dominated by black grama. Yucca, sotol, and agave are highly noticeable components of the landscape. Forbs are least noticeable, except when such plants as desert bailey are in flower.

Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	16
Bare ground	35
Surface gravel	35
Surface cobble and stone	7
Litter (percent)	7
Litter (average depth in cm.)	3

Plant Community Annual Production (by plant type):			
Annual Production (lbs/ac)			
Plant Type	Low	RV	High
Grass/Grasslike	220	380	540
Forb	22	38	54
Tree/Shrub/Vine	33	57	81
Lichen			
Moss			
Microbiotic Crusts			
Totals	275	475	675

Historic Climax Plant Community Plant Species Composition: Plant species are grouped by annual production **not** by functional groups.

Group	Grass/Grasslike Common Name	Scientific Name	Annual Production in Pounds Per Acre	
			Low	High
1	black grama	<i>Bouteloua eriopoda</i>	143	166
2	bush muhly	<i>Muhlenbergia porteri</i>	48	71
3	sideoats grama	<i>Bouteloua curtipendula</i>	5	24
	blue grama	<i>Bouteloua gracilis</i>		
4	cane bluestem	<i>Bothriochloa barbinodis</i>	48	71
	Arizona cottontop	<i>Digitaria californica</i>		
5	plains bristlegrass	<i>Setaria vulpiseta</i>	14	24
6	threeawn	<i>Aristida</i>	24	48
7	tobosagrass	<i>Pleuraphis mutica</i>	5	48
8	Graminoid (grass or grasslike)		5	14

<u>Group</u>	<u>Shrub/Vine Common Name</u>	<u>Scientific Name</u>	<u>Annual Production in Pounds Per Acre</u>	
			<u>Low</u>	<u>High</u>
9	winterfat	<i>Krascheninnikovia lanata</i>	5	24
10	agave	<i>Agave</i>	5	24
	common sotol	<i>Dasylirion wheeleri</i>		
	ocotillo	<i>Fouquieria splendens</i>		
	yucca	<i>Yucca</i>		
11	sacahuista	<i>Nolina microcarpa</i>	0	14
12	whitethorn acacia	<i>Acacia constricta</i>	5	14
	broom snakeweed	<i>Gutierrezia sarothrae</i>		
	creosote bush	<i>Larrea tridentata</i>		
	catclaw mimosa	<i>Mimosa aculeaticarpa var. biuncifera</i>		
13	pricklypear	<i>Opuntia</i>	5	14
14	feather dalea	<i>Dalea formosa</i>	5	14

<u>Group</u>	<u>Forb Common Name</u>	<u>Scientific Name</u>	<u>Annual Production in Pounds Per Acre</u>	
			<u>Low</u>	<u>High</u>
15	desert holly	<i>Acourtia nana</i>	14	38
	desert marigold	<i>Baileya multiradiata</i>		
	buckwheat	<i>Eriogonum</i>		
	blazingstar	<i>Mentzelia</i>		
	woolly plantain	<i>Plantago patagonica</i>		
	woolly paperflower	<i>Psilostrophe tagetina</i>		
16	Forb (herbaceous, not grass nor grasslike)		5	24

Plant Growth Curve:

Growth Curve Number:

NM2517

Growth Curve Name:

HCPC

Growth Curve Description:

SD-2 Warm Season Plant Community

<u>Percent Production by Month</u>											
<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
0	0	0	5	10	10	25	30	15	5	0	0

Ecological Site Interpretations

Animal Community:

This site provides habitat which support a resident animal community that is characterized by coyote, badger, desert cottontail, antelope, spotted ground squirrel, desert pocket mouse, Merriam's kangaroo rat, cactus mouse, southern plains woodrat, Swainson's hawk, roadrunner, crissal thrasher, cactus wren, black throated sparrow, white-necked raven, scaled quail, Scott's oriole, greater earless lizard, leopard lizard, roundtail horned lizard and striped whipsnake.

Large yuccas and woody shrubs of desert washes concentrate wildlife and provide breeding habitat for Scott's oriole, mocking bird, mourning dove, Swainson's hawk and roadrunner.

Hydrology Functions:

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.

Hydrologic Interpretations	
Soil Series	Hydrologic Group
Eba	C
Hap	B
Pinaleno	B
Nolam	B

Recreational Uses:

Suitability for camping and picnicking is fair. Rock hounding is fair. Hunting is fair for pronghorn antelope, quail, dove, small game. Photography and bird watching can be fair to good, especially during migration seasons. Most small animals of the site are nocturnal and secretive, seen only at night, early morning or evening. Scenic beauty is greatest during spring and sometimes summer months when flowering of forbs, shrubs, and cacti occurs.

Wood Products:

This site has no significant value for wood products.

Other Products:

This site is suitable for yearlong use, although most of the green forage is produced in the summer months. It is suited to grazing by cattle, sheep, goats, and horses, generally without regard to class of livestock. Retrogression caused by inadequately managed grazing usually results in such plants as black grama, bush muhly, sideoats grama, blue grama, and winterfat being replaced by such plants as threeawns, tobosa, broom snakeweed, and mesquite. Except in cases of severe deterioration where the site has been taken over by woody plants, recovery can be effected through good grazing management.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month	
Similarity Index	Ac/AUM
100 - 76	3.2 – 4.1
75 – 51	3.8 – 6.3
50 – 26	6.2 – 11.0
25 – 0	11.0 - +

Plant Preference by Animal Kind:

	Code	Species Preference	Code
Stems	S	None Selected	N/S
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruit/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	NC
Underground Parts	UP	Emergency	E
		Toxic	T

Animal Kind: Livestock

Animal Type: Cattle

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
black grama	<i>Bouteloua eriopoda</i>	EP	P	P	P	D	D	D	D	D	D	D	P	P
bush muhly	<i>Muhlenbergia porteri</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
Sideoats grama	<i>Bouteloua curtipendula</i>	EP	P	P	P	P	P	P	P	P	P	P	P	P
blue grama	<i>Bouteloua gracilis</i>	EP	D	D	D	D	D	P	P	P	P	P	D	D
plains bristlegrass	<i>Setaria vulpiseta</i>	EP	D	D	D	D	D	P	P	P	P	D	D	D
tobosa	<i>Pleuraphis mutica</i>	EP	N/S	N/S	D	D	D	P	P	P	D	D	D	N/S
cane bluestem	<i>Bothriochloa barbinodis</i>	EP	D	D	D	D	D	P	P	P	D	D	D	D
winterfat	<i>Krascheninnikovia lanata</i>	P	P	P	P	P	P	D	D	D	D	P	P	P
soaptree yucca	<i>Yucca elata</i>	F	N/S	N/S	N/S	N/S	P	P	N/S	N/S	N/S	N/S	N/S	N/S

Supporting Information

Associated Sites:

<u>Site Name</u>	<u>Site ID</u>	<u>Site Narrative</u>
------------------	----------------	-----------------------

Similiar Sites:

<u>Site Name</u>	<u>Site ID</u>	<u>Site Narrative</u>
------------------	----------------	-----------------------

State Correlation:

This site has been correlated with the following states:

Inventory Data References:

<u>Data Source</u>	<u>Number of Records</u>	<u>Sample Period</u>	<u>State</u>	<u>County</u>
--------------------	--------------------------	----------------------	--------------	---------------

Type Locality:

Relationship to Other Established Classifications:

Other References:

Data collection for this site was done in conjunction with the progressive soil surveys within the Southern Desertic Basins, Plains and Mountains, Major Land Resource Areas of New Mexico. This site has been mapped and correlated with soils in the following soil surveys. Socorro, Sierra County Dona Ana County Grant County Hidalgo County Luna County Otero County

Characteristic Soils Are:

Eba gravelly loam	Nolam very gravelly sandy loam and gravelly sandy loam
Hap gravelly loam	
Pinaleno very gravelly sandy loam	
<u>Other Soils included are:</u>	

Site Description Approval:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Don Sylvester	07/12/1979	Don Sylvester	07/12/1979

Site Description Revision:

<u>Author</u>	<u>Date</u>	<u>Approval</u>	<u>Date</u>
George Chavez	04/12/02	George Chavez	04/15/02